

WHAT IS CLAIMED IS:

1. A picture coding method for executing a coding control  
in such a manner that a target code amount is calculated every  
5 picture to be coded and a generated code amount of said picture  
to be coded is approximated to said target code amount, wherein:

said target code amount of the picture to be coded is calculated  
by adding a correction amount to a reference target code amount  
which is approximately constant;

10 said reference target code amount is calculated from a  
reference coding frame rate; and

said correction value is calculated based upon a difference  
between a predetermined target value and an actual value of a  
remaining coded picture amount of such a picture which has already  
15 been coded and has not yet been outputted from an apparatus.

2. A picture coding method as claimed in claim 1 wherein:

said target value of the remaining coded picture amount  
is determined based upon a frame-skipping threshold value  
20 corresponding to a threshold value used to judge as to whether  
or not a next picture is coded.

3. A picture coding method as claimed in claim 1 wherein:

said predetermined target value of the remaining coded picture  
25 amount is determined based upon the reference target code amount.

4. A picture coding method as claimed in any one of claims  
1 to 3 wherein:

a frame rate of an inputted picture is measured; and  
said reference coding frame rate is determined based on  
5 said measured frame rate.

5. A picture coding method as claimed in claim 4 wherein:  
said reference coding frame rate is determined based upon  
a maximum value of said measured frame rate.

10 6. A picture coding method as claimed in claim 4 wherein:  
said reference coding frame rate is determined based upon  
an average value of said measured frame rates within a constant  
time.

15 7. A picture coding method as claimed in claim 6 wherein:  
in the case that said reference coding frame rate is updated  
based upon the average value of the measured frame rates within  
said constant time, when a reference coding frame rate before  
20 being updated is larger than a reference coding frame rate after  
being updated, a value between said reference coding frame rate  
before being updated and said reference coding frame rate after  
being updated is used as the reference coding frame rate after  
being updated.

25 8. A picture coding apparatus for coding an inputted image

to output a compression picture signal, comprising:

a rate control unit having a function capable of adjusting a code amount generated every picture of said inputted image, which is to be coded; and

5 an output buffer having a function capable of storing thereinto a generated code until said stored code is outputted from the picture coding apparatus; wherein:

said rate control unit controls the rate in such a manner that a target code amount of said picture to be coded is calculated  
10 by adding a correction value to a reference target code amount which is approximately constant and a generated code amount of said picture to be coded is approximated to said target code amount;

said reference target code amount is calculated based upon  
15 a reference coding frame rate; and

said correction value is calculated based upon a difference between a predetermined target value and an actual value of a buffer remaining amount corresponding to a code amount left in said output buffer.

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9. A picture coding apparatus as claimed in claim 8 wherein:

said predetermined target value of the buffer remaining amount is determined based upon a frame-skipping threshold value corresponding to a threshold value used to judge as to whether  
25 or not a next picture is coded.

10. A picture coding apparatus as claimed in claim 8 wherein:  
said predetermined target value of the remaining buffer  
amount is determined based upon the reference target code amount.

5 11. A picture coding apparatus as claimed in any one of  
claims 8 to 10, further comprising:

measuring means for measuring a frame rate of said inputted  
image; and wherein:

10 said reference coding frame rate is determined based on  
said measured frame rate.

12. A picture coding apparatus as claimed in claim 11 wherein:  
said reference coding frame rate is determined based upon  
a maximum value of said measured frame rate.

15 13. A picture coding apparatus as claimed in claim 11 wherein:  
said reference coding frame rate is determined based upon  
an average value of said measured frame rates within a constant  
time.

20 14. A picture coding apparatus as claimed in claim 13 wherein:  
in the case that said reference coding frame rate is updated  
based upon the average value of the measured frame rates within  
said constant time, when a reference coding frame rate before  
25 being updated is larger than a reference coding frame rate after  
being updated, a value between said reference coding frame rate

before being updated and said reference coding frame rate after being updated is used as the reference coding frame rate after being updated.

5           15. An image relaying apparatus, comprising an image receiving unit to receive an image from an external image transmission unit, an image transmission unit to transmit an image to an external image receiving unit, and a picture coding unit, for converting an image in a first image format received from the external  
10 transmission unit to a second image format suitable for the external receiving unit and transmitting said image in the second image format to the external receiving unit,

          wherein the picture coding unit comprising:

          a rate control unit having a function capable of adjusting  
15 a code amount generated every picture of an inputted image, which is to be coded; and

          an output buffer having a function capable of storing thereinto a generated code until said stored code is outputted from the picture coding apparatus; wherein:

20           said rate control unit controls the rate in such a manner that a target code amount of said picture to be coded is calculated by adding a correction value to a reference target code amount which is approximately constant and a generated code amount of said picture to be coded is approximated to said target code  
25 amount;

          said reference target code amount is calculated based upon

a reference coding frame rate; and

said correction value is calculated based upon a difference between a predetermined target value and an actual value of a buffer remaining amount corresponding to a code amount left in  
5 said output buffer.

16. An image relaying apparatus as claimed in claim 15 wherein:  
said predetermined target value of the buffer remaining amount is determined based upon a frame-skipping threshold value  
10 corresponding to a threshold value used to judge as to whether or not a next picture is coded.

17. An image relaying apparatus as claimed in claim 15 wherein:  
said predetermined target value of the remaining buffer  
15 amount is determined based upon the reference target code amount.

18. An image relaying apparatus as claimed in any one of claims 15 to 17, the picture coding unit further comprising:  
measuring means for measuring a frame rate of said inputted  
20 image; and wherein:

said reference coding frame rate is determined based on said measured frame rate.

19. An image relaying apparatus as claimed in claim 18 wherein:  
25 said reference coding frame rate is determined based upon a maximum value of said measured frame rate.

20. A picture coding apparatus as claimed in claim 18 wherein:  
said reference coding frame rate is determined based upon  
an average value of said measured frame rates within a constant  
5 time.

21. An image relaying apparatus as claimed in claim 20 wherein:  
in the case that said reference coding frame rate is updated  
based upon the average value of the measured frame rates within  
10 said constant time, when a reference coding frame rate before  
being updated is larger than a reference coding frame rate after  
being updated, a value between said reference coding frame rate  
before being updated and said reference coding frame rate after  
being updated is used as the reference coding frame rate after  
15 being updated.